

# **EXHIBIT 1**



## **PRELIMINARY REPORT**

Prepared for:

Emroch & Kilduff  
**Attn: Mr. William Kilduff**  
3600 W. Broad Street, #700  
Richmond, Virginia 23230

**By: William E. Dickinson, P.E.**  
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**Your Reference: Richard Walker v X-Stand**  
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slid along the cable at ranges between 2,000 pounds to 4,000 pounds. The cable continued to hold load up to, and past, 6,000 pounds after the cable stop had slid. The Summit cable held without catastrophic failure over twice the load that failed the X-Stand cable assembly.

## ANALYSIS

The Wire Rope User's Manual states that the nominal strength of the wire rope only applies to new unused wire rope; nominal strength should never be used as the wire rope's working load. The manual states that to determine the working load of a wire rope, the nominal strength must be reduced by a design factor (formerly called a safety factor). The design factor will vary depending on the use of the wire rope. The user/designer must determine the applicable design factor for their use. No wire rope should ever be used without full knowledge and consideration of the design factor for the application. The Wire Rope User's Manual states that wire ropes wear out. The strength of a wire rope begins to decrease when the wire rope is put in use, and continues to decrease with each use. It states to never use a wire rope in an application where the load applied is greater than the working load determined by dividing the nominal strength of the wire rope by the appropriate design factor. Wolf's research into design factors for wire rope shows that a design factor of at least 5 is typically used in most wire rope applications. Occupational Safety and Health Administration's (OSHA) standard on wire rope selection and installation criteria, 1926.1414, recommends a design factor of no less than 5 for most applications. The Machinery's Handbook 12<sup>th</sup> Edition uses a design factor of 5 to calculate working loads and states that a safety factor, or design factor, of 8 or more may be required in some applications. The Machinery's Handbook 24<sup>th</sup> Edition and 29<sup>th</sup> Edition states that a safety factor, or design factor, for standing wire rope usually ranges from 3 to 4. Standing wire rope is wire rope only in tension that does not bend or go around a sheave. Standing rope would not match the application of the wire rope used to support the hunter using the X-Stand tree stand. The Machinery's Handbook 24<sup>th</sup> Edition and 29<sup>th</sup> Edition states that a safety factor, or design factor, for operating wire rope usually ranges from 5 to 12. Operating wire rope is wire rope that is passing over a sheave or bending. Operating wire rope would match the application of the wire rope used to support the hunter using the X-Stand tree stand. The Machinery's Handbook 24<sup>th</sup> Edition and 29<sup>th</sup> Edition states that where there is the element of hazard to life or property, higher safety factor values are used.

The Wire Rope User's Manual lists the minimum breaking strength for galvanized and corrosion resistant wire rope. The minimum breaking strength shown in the Wire Rope User's Manual for  $\frac{3}{32}$  inch diameter 7x7 galvanized and corrosion resistant wire rope is 920 pounds. This is consistent with our testing which showed that each wire rope failed at approximately 1,250 pounds, which is greater than the minimum breaking strength of 920 pounds. The working load for each wire rope would be at least  $\frac{1}{5}$  of the minimum